

Similar Shapes
Student Directions

Name _____

Class _____

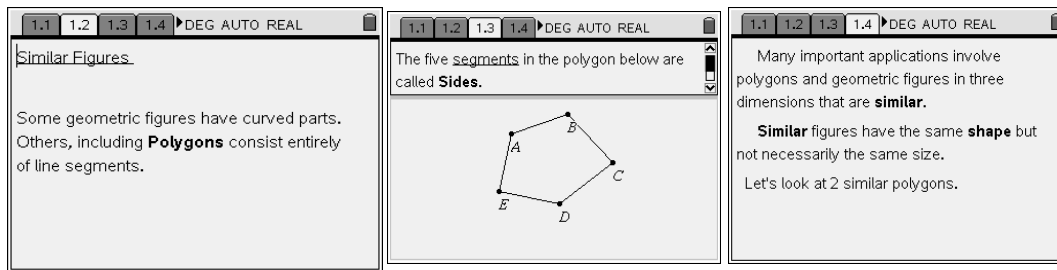
0606.4.9 Analyze the differences between congruence and similarity.

In this activity, you will

- ✓ Explore Similar Polygons/Similar Triangles








*Remember to move from page to page,  and to go back to a previous page, .

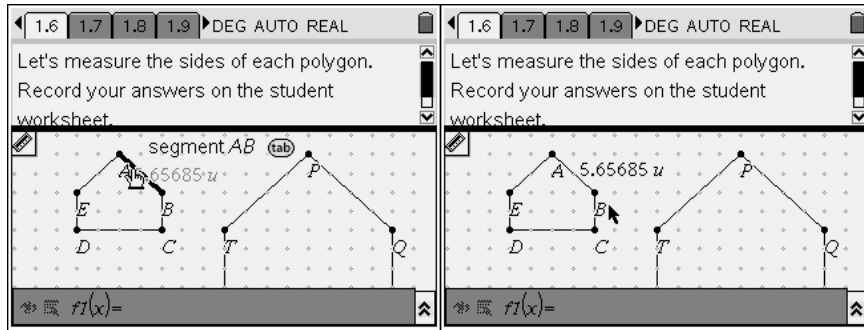
1. Open the similar shapes.tns document on your TI-Nspire™ math and science learning handheld, read pages 1.2, 1.3, and 1.4. (Figure 1)



2. Page 1.5. What observations can you make about the two polygons?

3. Page 1.6. Measure the sides of each polygon.

- ✓ To measure the sides of each polygon you must tab to the bottom of the screen by using the  . Once you have completed this task, you may notice that the bottom section of the screen will have a dark rectangular border or a >>.
- ✓ To measure each side of a polygon, select   . The ruler should be in the left hand corner of your screen. Move the cursor to side AB. Once you get close to the side, you should see the words segment AB on the screen. The segment should be flashing. Click  once to measure the side. Click  again to set the value. Record the value in the table below. Do not round the value.



- ✓ Measure every side of Polygon ABCDE and Polygon PQRST (using the above directions) then write your measurements in the table below.

<u>Polygon ABCDE</u>	<u>Polygon PQRST</u>
AB= _____	PQ= _____
BC= _____	QR= _____
CD= _____	RS= _____
DE= _____	ST= _____
EA= _____	TP= _____

What is the ratio of AB to PQ? _____

What is the ratio of BC to QR? _____

What is the ratio of CD to RS? _____

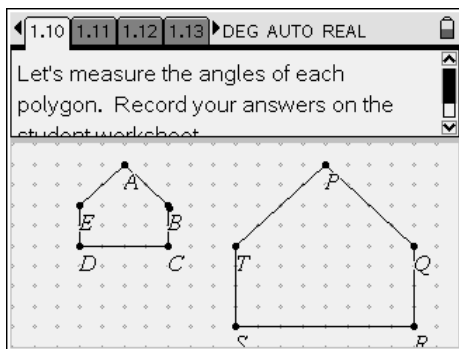
What is the ratio of DE to ST? _____

What is the ratio of EA to TP? _____

6. Page 1.8. What do you notice about the ratios?

7. Page 1.9 and 1.10. Measure the angles of each polygon. Record your answers below.

- ✓ To measure the angles of each polygon you must remember that an angle is named by using the three points that form the angle.
- ✓ To measure the angles of each polygon you must tab to the bottom of the screen by using the **ctrl** **tab**. Once you have completed this task, you may notice that the bottom section of the screen will have a dark rectangular border or a >>.
- ✓ To measure angle ABC, start by going to **menu**, then go to measurement (#7), and then angle (#4). You should see the angle icon in the left hand corner. Using the **nav pad**, move the pencil to point A. Once the words “point A” are blinking push **enter**, then move to the next point B. Again wait until the words “point B” show on the screen, then **enter** to finish, move on to the final point C. Again wait until the words “point C” show on the screen, then **enter**.



- ✓ You must go through the above procedure to measure all of the angles.

Measures of:

- | | |
|----------------------|----------------------|
| $\angle ABC =$ _____ | $\angle PQR =$ _____ |
| $\angle BCD =$ _____ | $\angle QRS =$ _____ |
| $\angle CDE =$ _____ | $\angle RST =$ _____ |
| $\angle DEA =$ _____ | $\angle STP =$ _____ |
| $\angle EAB =$ _____ | $\angle TPQ =$ _____ |

8. Page 1.12. Question: What do you notice about the angle measures?

9. Page 1.13. Based on your findings, complete the following two statements.

Two polygons are said to be similar if:

1. Their corresponding sides are all in the _____ ratio.
2. Their corresponding angles are _____ in measure.

10. Problem 2. Prove that $\triangle ABC$ and $\triangle PQR$ are similar. Provide all of the information needed to prove that the two triangles are similar.

1.11 1.12 1.13 2.1 DEG AUTO REAL

Now, let's try triangles.

Prove that the following two triangles are similar. On the student worksheet, provide all of the information needed to prove that the two triangles are similar.

$\triangle ABC$ and $\triangle PQR$